

PARTIAL READ AND WRITE PATH DATA FLOW IN A DIRECT ACCESS STORAGE DEVICE

FIG. 1 (Prior Art)

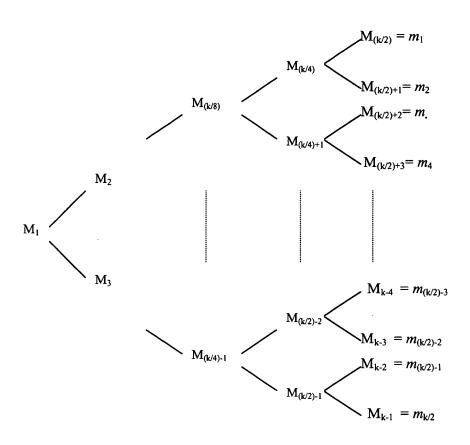
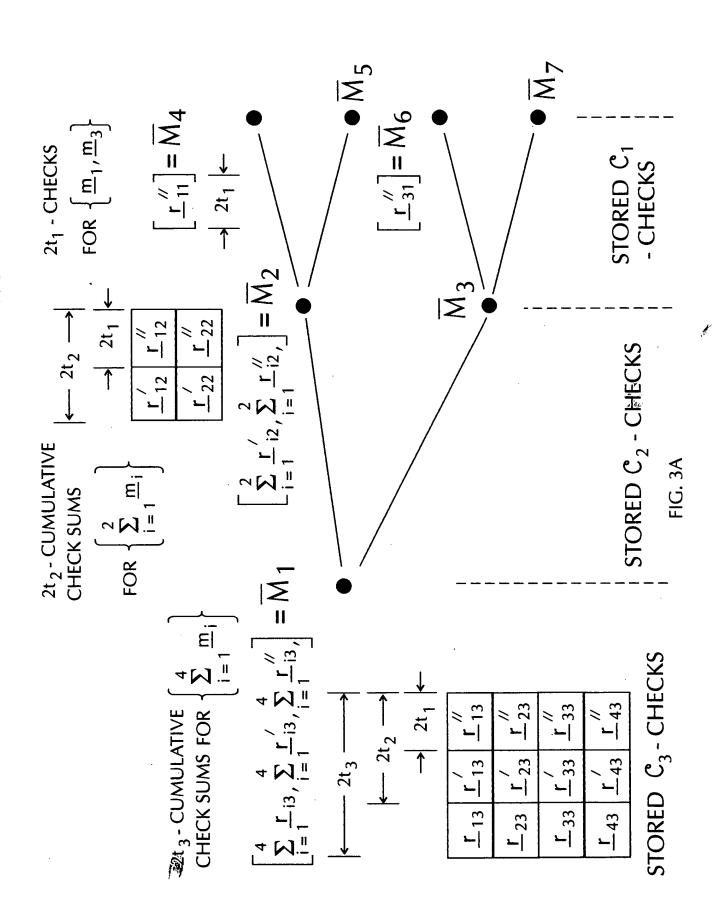


FIG. 2



CHECK EQUATIONS

L1= L11

MULTI-LEVEL ENCODER
$$\overline{\mathbb{M}}_{4} = \begin{bmatrix} \underline{r}'' \\ \underline{r}'' \end{bmatrix}$$

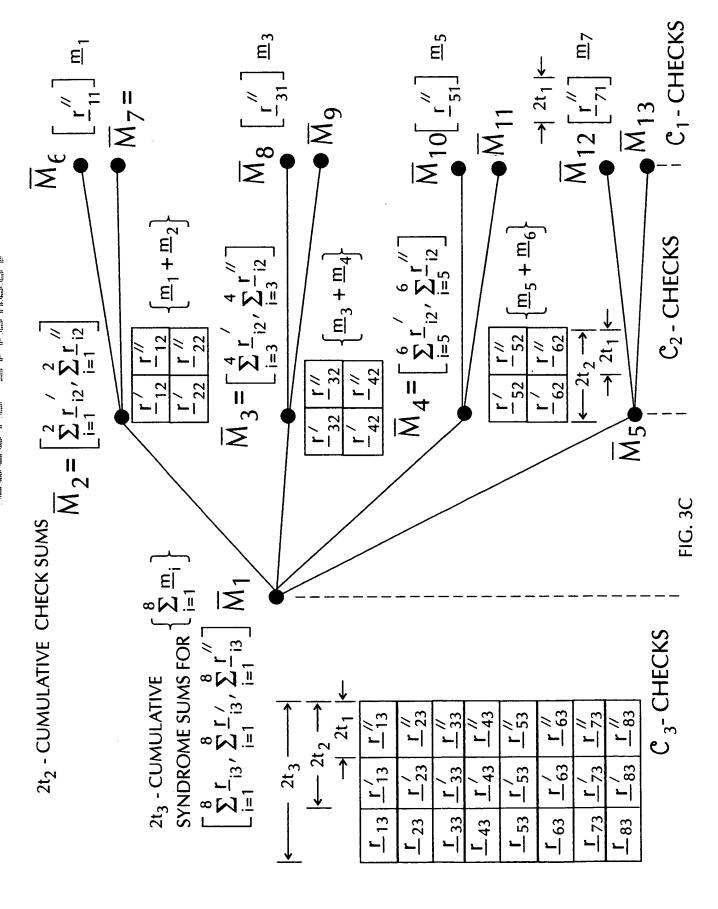
$$\overline{M}_2 = \begin{bmatrix} \frac{2}{2} & \frac{2}{1} & \frac{2}{1} \\ \frac{2}{1-12} & \frac{2}{1-1} & \frac{2}{1} \end{bmatrix}$$

$$L_a$$
 $L_2 \Longrightarrow$ M_2 L_a L_2

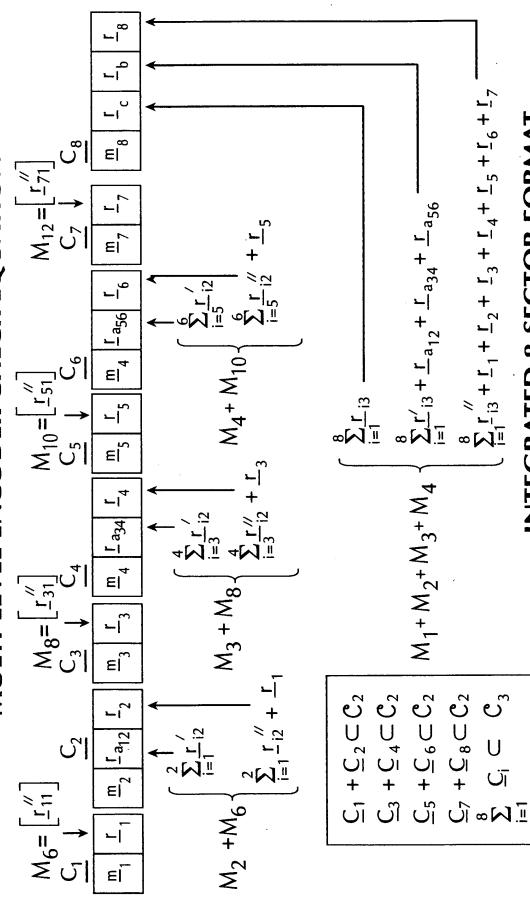
 $\Gamma_{a} = \sum_{i=1}^{2} \Gamma'_{i2}, \Gamma_{2} = \Gamma''_{11} + \sum_{i=1}^{2} \Gamma''_{i2}$

$$\overline{M}_6 = \frac{\Gamma_{31}}{\Gamma_3 \Leftrightarrow \overline{m}_3 \quad \overline{\Gamma}_3}$$

INTEGRATED 4-SECTOR **FORMAT**



MULTI-LEVEL ENCODER CHECK EQUATION



INTEGRATED 8-SECTOR FORMAT

 $C_3 \cap C_2 \cap C_1$

FIG. 3D

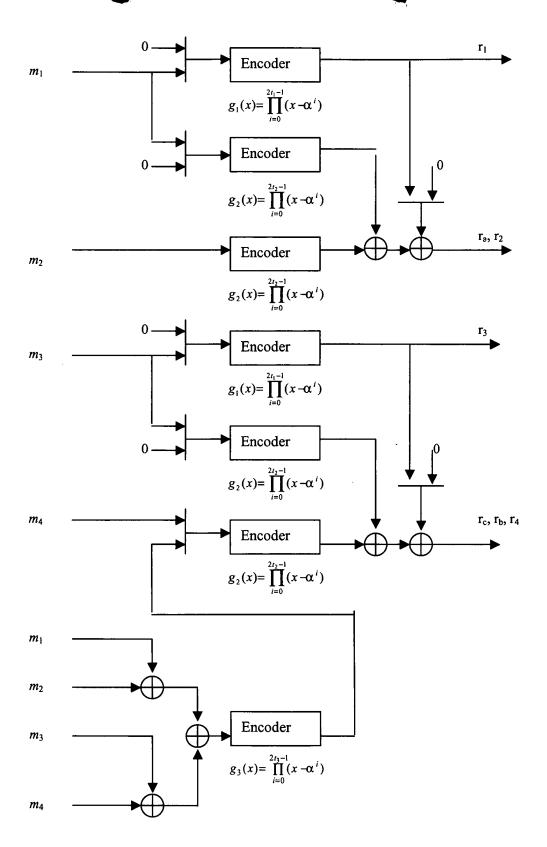


FIG. 4

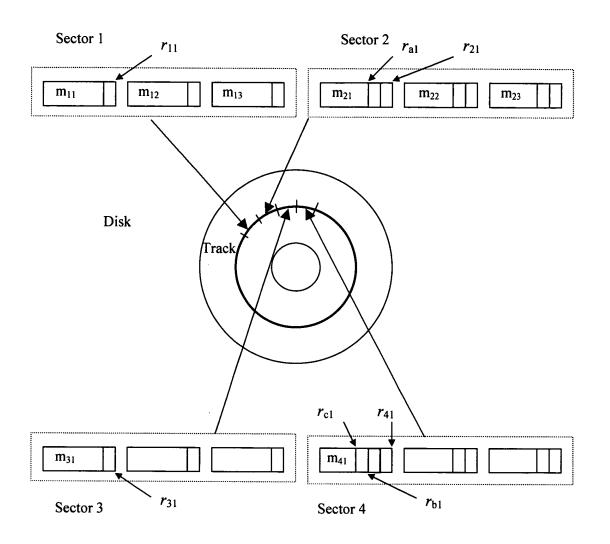


FIG. 5

GENERATOR MULTI-LEVEI SYNDROME

SYNDROME SUMS FOR 2t, - CUMULATIVE

2t₁ SYNDROMES FOR

$$\overline{M}_2 = \begin{bmatrix} \frac{2}{\sum_{i=1}^{2} s_{i2}'} & \frac{2}{\sum_{i=1}^{2} s_{i2}'} \end{bmatrix}, \quad \sum_{i=1}^{2} \overline{C}_i \qquad \overline{M}_4 = \begin{bmatrix} \underline{S}_1'' \end{bmatrix}, \quad \overline{C}_1$$

SYNDROME SUMS FOR 2t₃ - CUMULATIVE

 $\sum_{i=1}^{4} S_{i3}, \sum_{i=1}^{4} S_{i3}', \sum_{i=1}^{4} S_{i3}'' \end{bmatrix} = \overline{M}_{1}$

 $[\underline{S}'_{12},\underline{S}_{12}'']$

 $\mathbf{M}_{5} = \left[\underline{s}_{2}''\right], \widetilde{\underline{C}}_{2}$

 $\left[\overline{S}_{22}^{\prime}, \underline{S}_{22}^{\prime\prime} \right]$

 $\overline{M}_3 = \begin{bmatrix} 4 & 4 & 4 \\ \sum_{i=3} S_{i2}', \sum_{i=3} S_{i2}'' \end{bmatrix}, \sum_{i=3}^2 \overline{C}_i$

513, 513, 513

 5_{33} , 5_{33} , 5_{23}

 $\overline{S}_{23}, \overline{S}_{23}', \overline{S}_{23}''$

<u>S</u>₄₃, <u>S</u>₄₃, <u>S</u>₄₃

 $\vec{M}_6 = [\vec{S}_3''], \vec{C}_3$

 $[\underline{5}_{32},\underline{5}_{32}]$

 $\overrightarrow{M}_7 = \left[\underline{S}_4'' \right], \widetilde{C}_4$

 $\left[\frac{5}{42},\frac{5}{242}''\right]$

SYNDROMES STORED C2

SYNDROMES

STORED C₃

SYNDROMES STORED C₁

